

What is Claimed Is:

1. A method for operating a polymer electrolyte fuel cell comprising a plurality of unit cells, each of said unit cells comprising a polymer electrolyte membrane, a pair of electrodes sandwiching said polymer electrolyte membrane, and electroconductive separators, which generates electricity with the supply of a fuel gas to one of said electrodes and an oxidant gas to the other of said electrodes, said method comprising the steps of:

determining an electric output of said single unit cell or a group of said unit cells after the stoppage of the supply of either said fuel gas or said oxidant gas and the introduction of another gas to at least one of said pair of electrodes; and

comparing said electric output to a predetermined value.

2. The method for operating a polymer electrolyte fuel cell in accordance with claim 1, comprising the steps of:

supplying an inert gas or a raw material gas containing methane gas or propane gas to at least one of said pair of electrodes after the stoppage of the supply of said fuel gas or said oxidant gas as the other gas.

3. The method for operating a polymer electrolyte fuel cell in accordance with claim 1, wherein the electric output that is determined is an electric output change over time.

4. The method for operating a polymer electrolyte fuel cell in accordance with claim 1, wherein said predetermined value is an approximate voltage value at which a metal catalyst of one of said electrodes to be supplied with said fuel gas starts to melt.

5. The method for operating a polymer electrolyte fuel cell in accordance with claim 1, further comprising determining whether said electric output is less than the predetermined value.

6. The method for operating a polymer electrolyte fuel cell in accordance with claim 1, wherein said electric output is current, voltage, rate of voltage decrease, or an average thereof.

7. The method for operating a polymer electrolyte fuel cell in accordance with claim 1, wherein said electric output is determined after about 1 minute to about 4 minutes from the introduction of another gas to at least one of said pair of electrodes.

8. The method for operating a polymer electrolyte fuel cell in accordance with claim 1, wherein the other gas is supplied to the fuel cell electrode.

9. The method for operating a polymer electrolyte fuel cell in accordance with claim 1, wherein both said fuel gas or said oxidant gas are stopped prior to the introduction of the other gas.

10. The method for operating a polymer electrolyte fuel cell in accordance with claim 1, wherein the other gas is nitrogen and it is supplied to the fuel cell electrode.

11. A polymer electrolyte fuel cell comprising a plurality of unit cells, each of said unit cells comprising a polymer electrolyte membrane, a pair of electrodes sandwiching said polymer electrolyte membrane, and electroconductive separators on either of said electrodes, which generates electricity with the supply of a fuel gas to one of said electrodes and an oxidant gas to the other of said electrodes,

wherein said fuel cell further comprises a control unit for determining said single unit cell or a group of said unit cells as defective when an electric output thereof is not greater than a predetermined value after the stoppage of the supply of either said fuel gas or said oxidant gas and the introduction of another gas to at least one of said pair of electrodes.